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(54) **COLLAPSIBLE CONTAINER**

ZUSAMMENKLAPPBARER BEHÄLTER

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## Description

### Technical field

[0001] The invention relates to a collapsible container, in particular a hinge structure of the collapsible container.

### Background

[0002] The empty containers or boxes with fixed side walls need considerable storage space. Therefore, the existing container comprises collapsible side walls to reduce the corresponding volume in unloaded status. Most of these collapsible containers comprise a base in form of rectangular plate structure, wherein the collapsible side walls are coupled to the edges of the base by hinges. When the side walls are in unfolded position, the side walls are coupled to each other via interlocking buckle engagement, wherein engaging latches on one pair of opposite side walls are engaged to the engaging hooks on the other pair of opposite side walls.

[0003] For many containers, the side walls are configured to be higher than half of the width of the base, thus the opposite side walls will be overlapped when they are folded towards each other. Therefore, the side wall which is folded later will extend beyond the edge of the side wall which is folded first and will be not parallel to the base but angled. In other word, the side wall folded later is in an inclined position. When a plurality of containers are stacked one above another, corresponding bending movement of the upper side wall positioned angularly occurs, which will cause a damage or deform over time. For such containers, another defect is that several collapsed containers can not be stacked in a stable way.

[0004] In order to overcome these defects, the side walls are connected to the shaft with different heights on the sides of the base, so that the side walls are connected to the base at different heights, wherein the side walls connected at lower positions are folded firstly, then the side walls connected at higher positions are folded subsequently, and when two side walls are in folded positions, they are arranged parallel to the base.

[0005] However, the height of the opposite side walls are different, which increases the cost of manufacturing and maintaining. Further, the workers must pay more attention during the operation which will affect the efficiency to some extent, since the folding work should be executed sequentially. It needs a more advanced alternative solution to solve this problem.

### Summary

[0006] The object of this invention is to provide a collapsible container which can be assembled and disassembled without tool and can be folded in any consequences.

[0007] In order to achieve the above object, this invention provides a collapsible container, comprising a base

and two pairs of opposite side walls, wherein:

each of the side walls is provided with one or more movable portions extending from the bottom of the side walls, and the base is provided with one or more opening pockets, wherein the side walls are positioned in the corresponding opening pockets on the base via the movable portions;

a hinge device is provided between the movable portions and the opening pockets, wherein the hinge device comprises: hinge holes provided in the movable portions of the side walls; a guiding device provided in the opening pockets of the base; and a connector provided with hinge pins and a sliding device to be engaged with the guiding device; wherein, the connector is movable up and down in vertical direction along the guiding device in the opening pockets via the sliding device, and the hinge pins are disposed in the hinge holes and enable the side walls to be rotated around the hinge pins.

[0008] Preferably, according to the collapsible container of the invention, an interlocking device is disposed between at least one side wall and the base, so that the interlocking device prevents the side wall from moving in vertical direction relative to the base when the side wall is in erected status relative to the base, and the interlocking device between the side wall and the base is releasable through the rotation of the side wall around the hinge pins.

[0009] According to one embodiment of the invention, the sliding device on the connector is a through hole in the center thereof; the hinge pins are located perpendicular to the axis of the through hole on one or two sides of the connector; and the guiding device in the opening pockets of the base is a vertical cylinder capable of passing through the through hole, so that the connector is movable along the axis of the cylinder.

[0010] According to another embodiment of the invention, the sliding device of the connector is a straight wall disposed on one end of the connector; the hinge pins are located at the other end of the connector and perpendicular to the straight wall; and the guiding device in the opening pocket is a straight slot perpendicular to a plane of the base, wherein the straight wall is slidable along the straight slot, so that the connector is movable along the straight slot.

[0011] Preferably, the opening pockets in the base are provided with lateral shoulders with a lateral distance  $H_2$  from the end surface thereof to the axis of the hinge pin; wherein a distance from the external edge of the movable portion of the side wall disposed in the opening pocket to the axis of the hinge pin is larger than  $H_2$ .

[0012] Preferably, the movable portion is provided with a recess at the lower portion thereof; the hinge hole is an arc profile disposed at the root of the recess; and a narrowed segment is provided between the arc profile and an opening of the recess, so as to prevent the hinge

pin from easily dropping off after entering into the recess.

**[0013]** Preferably, the interlocking device comprises ledges provided on the two sides of the movable portion and grooves on the base for engaging with the ledges, so as to restrict a movement of the side wall in vertical direction relative to the base when the side wall is in erected status.

**[0014]** Preferably, the movable portion is provided with an inclined ramp, when connected, the vertical distance from the ramp to the axis of the hinge pin of the connector is no greater than the vertical distance  $H_2$  from the axis of the hinge pin to an end surface of the shoulders on the base.

**[0015]** Preferably, the movable portion is provided with a slot at a bottom end on one side thereof, and the base is provided with a baffle, wherein the slot allows the baffle of the base to be received therein when the side walls are erected, so as to restrict the side walls from moving inwardly when suffering external force.

**[0016]** Preferably, the collapsible container is IBC.

**[0017]** When folded, the side walls of the collapsible container according to this invention will not inclined relative to the base. In addition, the collapsible container of the invention can be detached or folded in any consequences without tool.

### Brief description of drawings

#### [0018]

Figure 1 shows a perspective structural view of a general collapsible container.

Figure 2 shows a structure of connection between the side wall and the base according to the first embodiment of this invention.

Figure 3 is a perspective structural view of the connector in figure 2.

Figure 4 shows a perspective structural view of the connection portion of the base according to the first embodiment of this invention.

Figures 5-6 show a perspective structural view of the connection portion of the side wall according to the first embodiment of this invention.

Figure 7 is a partial section view along line A-A in figure 5 of the connection portion of the side wall.

Figure 8 shows an assembling relationship among the side wall, the base and the connectors.

Figures 9 and 10 show the positions of moving portions extending from opposite side walls on the base when the opposite side walls are folded in different sequences.

Figure 11 shows an unfolding process of the side wall.

Figures 12-15 show the structure of connection between the side wall and the base according to the second embodiment of this invention.

Figures 16-17 are the structural views of collapsed container with side walls folded in different sequenc-

es respectively.

### Detailed description

**[0019]** The preferred embodiments of the invention will be described in detail with the reference to the drawing in the following, in order to more clearly understand the purpose, the features and advantages of the present invention. It should be understood that the embodiments shown in the drawings are not to limit the scope of the invention, but merely to illustrate the technical solution of the present invention.

**[0020]** Figure 1 shows a perspective structural view of a general collapsible container. As shown in figure 1, a collapsible container 100 comprises a base 1, two pairs of side walls 2 and 3, and locks 4 for maintaining the side walls 2 and 3 in erected positions. When the container are transported in unloaded status, the locks 4 between side walls 2 and 3 are unlocked, then the side walls 2 and 3 are folded towards the interior of the container, so that the height of the container is reduced significantly and the transportation cost is saved.

**[0021]** Figures 2-7 show the structure of connection between the side wall and the base according to the first embodiment of this invention. As shown in figures 2-5, the side walls 2 and 3 are provided with one or more movable portions 31 at the bottom thereof. The side walls 2 and 3 can be disposed in one or more corresponding opening pockets 11 in the base 1 via one or more movable portions 31. Then, the side walls 2 and 3 and the base 1 are interconnected via the hinge device between the opening pockets 11 and the movable portions 31. The hinge device comprises a connector 6 with a through hole 62 (round, square, and the like) in the center thereof and hinge pins 61 perpendicular to the axis of the through hole 62 on two or one sides of the connector. The movable portions 31 of the side walls are provided with holes for receiving the hinge pins on the connector 6, so that the side walls can be rotated around the hinge pins. The base 1 is provided with a vertical cylinder 12 in an opening pocket 11 which can pass through the through hole 62 of the connector, so that the connector is movable along the central axis of the cylinder 12, i.e. in vertical direction.

**[0022]** The specific structure of the connector 6 is shown in figure 3. The connector is provided with a circular through hole 62 and a hinge pin 61 on each side thereof. The two hinge pins 61 are coaxial and perpendicular to the axis of the through hole 62.

**[0023]** Figure 4 shows a perspective structural view of the connection portion between the base and the side walls. As shown in figure 4, the base 1 is provided with opening pockets 11 and 11a. Each of the opening pockets 11 and 11a is provided with grooves 13 on two sides thereof. Each of the opening pockets 11 is provided with a cylindrical pin 12 inside thereof. The cylindrical pin can pass through the hole 62 of the connector 6, so that the connector 6 is movable along the axis of the cylinder pin 12. The opening pocket 11a is provided with lateral shoul-

ders 14 on the top thereof and a baffle 15 on the bottom thereof. It shall be noted that, the relative arrangement of the opening pocket 11 and the opening pocket 11a can be changed. For example, in figure 4, the left opening pocket can be an opening pocket 11a, and the middle one can be an opening pocket 11.

**[0024]** Figures 5-7 show the structure of the connection portion on the side walls, wherein figure 7 is a partial section view. As shown in figures 5-7, the bottom of the side wall 3 has movable portions 31 and 31a extending therefrom with a ledge 33 at each side thereof. The ledge 33 can be cooperated with the groove 13 on the base 1. That is, the ledges 33 can enter into the groove 13 when the side walls 3 are in erected status, so as to restrict a vertical movement of the side wall 3 relative to the base 1 in such status. The side of movable portion 31 is provided with a slot 35 in the central portion thereof for receiving the cylinder pin 12 and with a recess 32 in the lower portion thereof. The specific structure of the recess 32 is shown in the sectional view of figure 7. The recess has an arc profile 321 at the root for accommodating the hinge pin 62 of the connector. A narrowed segment 322 is provided between the profile 321 and the opening of the recess 32, so that the hinge pin 62 in the recess 32 can not drop off easily.

**[0025]** The movable portion 31a is provided with an inclined ramp 34 and a recess 36 above the ramp 34. When connected, the vertical distance  $H_1$  from the ramp 34 to the axis of the hinge pin 62 of the connector 6 is no greater than the vertical  $H_2$  from the axis of the hinge pin 62 to the end surface of the shoulder 14 on the base 1 (see figure 11). In addition, as shown in figure 7, the movable portion 31a is provided with a slot 37 at the bottom end on the other side. The slot 37 allows the baffle 15 to be received therein when the side walls 2 and 3 are erected (see figure 11), so as to restrict the side walls 2 and 3 from moving inwardly when suffering external force.

**[0026]** The cooperation among the side walls 2 and 3, the base 1 and the connector 6 is shown in figure 8. It shall be noted that, the hinge pins 61 of the connector 6 can be mounted in the recess 32 of the side walls 3 in many ways, for example, through interference fit by pressing the hinge pins 61 into the recess 32 due to the flexibility of the plastic member, or forming a ramp on the hinge pin 61 at the non-working angle position with a width less than the width of the narrowed segment 322, or dividing the hinge pin 61 into separate components so that they can be inserted laterally. The purpose of the above solutions is that the side walls 2 and 3 can be rotated relative to the connector 6 and the connector 6 is interconnected with the side walls 2 and 3 when the side walls are in working position. Likewise, the shapes of the holes 62 in the connector 6 and the cylinder pin on the base 1 can vary in practice, such as square, oval, and the like. The side walls can also be connected to the base 1 by various means such as consequent assembling or inserting inserts, as long as side walls 2 and 3 can move relative to the base 1 up and down in non-

erected status and maintain connection with the base 1 in a certain movement distance.

**[0027]** Figures 9 and 10 show the positions in the base 1 of the movable portions 31 of opposite side walls 2 and 3 in different folding sequences. Taking the side wall 2 as an example, both earlier and later folding sequences allow it overlaps with the base 1 flatly and snugly. The difference is that, the movable portion of the side wall 2 which is folded later in the base 1 offsets upwardly a distance by about the thickness of one side wall.

**[0028]** Other than figures 9 and 10, figure 11 shows the relationship among features during the rotation of the side walls relative to the base. Taking the side wall 3 as an example, it is known that the above structure enables the movable portion 31 to move up and down in the opening pocket 11 of the base 1. The side wall 3 can be rotated around the hinge pins 61 of the connector 6, as shown in figures. Assuming the distance from the ramp 34 on the movable portion 31 to the axis of the hinge pins 61 is set as 7mm, and the vertical distance from the end surface on the shoulders 14 of the opening pocket 11 to the axis of the hinge pins 61 is set as 7.5mm, then when the side wall 3 is rotated by a certain angle for example 60 degrees, the ramp 34 is substantially in an erected status, enabling the movable portion 31 to avoid the shoulders 14. If it is required to detach the side wall 3, the base 1 is disconnected with the side wall by only pulling the side wall 3 upwardly further so that it can be disengaged from the opening pocket 11. When the side wall 3 is normally rotating within other angle range, the shoulders 14 can always restrict the movable portions 31 from leaving the opening pockets 11 in the base 1, so as to ensure the connection between the side wall 3 and the base during folding and unfolding. The ledges 33 can be received in the grooves 13 when the side wall 3 is in erected status, so as to restrict the side wall 3 from moving in vertical direction relative to the base 1. Further, the ledges 33 can be disengaged from the grooves 13 by only rotating the side wall 3 inwardly. The recess 36 can engage with the shoulders 14 in the same way, so as to improve the locking strength between the side wall 3 and the base 1 in vertical direction.

**[0029]** Figures 12-17 show the structure of connection between the side wall and the base according to the second embodiment of this invention. As shown in figures 12-17, the difference between this embodiment and the first embodiment lies in that, the structure enabling the movable portions 31 of the side wall 3 to move up and down in the opening pockets 11 of the base 1 is varied as a straight wall 72 provided on a connector 7 and a straight slot 16 provided on the base (the corresponding structures in the embodiment shown in figures 2-7 are the hole 62 and the cylindrical pin 11). The straight wall 72 can be inserted into the straight slot 16 and moves up and down along it. The straight wall 72 is provided on one end of the connector 7, and the hinge pins 71 are provided on the other end of the connector 7 and perpendicular to the straight wall 72. The remaining features

are the same, and the description thereof is not described again.

**[0030]** It should be noted that, in the above embodiments, the engagement structure between the connector and the opening pocket of the base can employ other engagement structures other than the hole-cylinder pin and the straight wall-straight slot, provided that the connector can move up and down in vertical direction in the opening pockets of the base. Indeed, it can work provided that the opening pockets of the base are provided with guiding device, and the connectors are provided with sliding device engaging with the guiding device, enabling the sliding device on the connector to move up and down in vertical direction along the guiding device in the opening pockets.

**[0031]** When folded, the side walls of the collapsible container according to this invention will not be inclined relative to the base. In addition, the collapsible container of the invention can be detached or folded in any consequences without tool.

**[0032]** This invention is suitable for large containers, especially large collapsible transferring containers. The large container herein is a container with volume over 800L.

**[0033]** The preferred embodiments of the present invention have been described in detail above. However, it should be understood that after reading the foregoing teachings of the present invention, those skilled in the art may make various modifications.

## Claims

1. A collapsible container (100), comprising a base (1) and two pairs of opposite side walls (2, 3), wherein:

each of the side walls (2, 3) is provided with one or more movable portions (31, 31a) extending from the bottom of the side walls (2, 3), and the base (1) is provided with one or more opening pockets (11, 11a), wherein the side walls (2, 3) are positioned in the corresponding opening pockets (11, 11a) on the base (1) via the movable portions (31, 31a);

a hinge device is provided between the movable portions (31) and the opening pockets (11), **characterised in that** the hinge device comprises: hinge holes (321) provided in the movable portions (31) of the side walls (2, 3); a guiding device (12, 16) provided in the opening pockets (11) of the base (1); and a connector (6, 7) provided with hinge pins (61, 71) and a sliding device (62, 72) to be engaged with the guiding device (12, 16); wherein,

the connector (6, 7) is movable up and down in vertical direction along the guiding device (12, 16) in the opening pockets (11) via the sliding device (62, 72), and the hinge pins (61, 71) are

disposed in the hinge holes (321) and enable the side walls (2, 3) to be rotated around the hinge pins (61, 71).

2. The collapsible container (100) according to claim 1, wherein an interlocking device (33, 13) is disposed between at least one side wall (2, 3) and the base so that the interlocking device (33, 13) prevents the side wall (2, 3) from moving in vertical direction relative to the base (1) when the side wall (2, 3) is in erected status relative to the base (1), and the interlocking device (33, 13) between the side wall (2, 3) and the base (1) is releasable through the rotation of the side wall (2, 3) around the hinge pins (61, 71).
3. The collapsible container (100) according to claim 1, wherein the sliding device on the connector (6) is a through hole in the center thereof; the hinge pins (61) are located perpendicular to the axis of the through hole on one or two sides of the connector (6); and the guiding device in the opening pockets (11) of the base is a vertical cylinder (12) capable of passing through the through hole (62), so that the connector (6) is movable along the axis of the cylinder (12).
4. The collapsible container (100) according to claim 1, wherein the sliding device of the connector (7) is a straight wall (72) disposed on one end of the connector (7); the hinge pins (71) are located at the other end of the connector (7) and perpendicular to the straight wall (72); and the guiding device in the opening pocket (11) is a straight slot (16) perpendicular to a plane of the base (1), wherein the straight wall (72) is slidable along the straight slot (16), so that the connector (7) is movable along the straight slot (16).
5. The collapsible container (100) according to claim 1, wherein the opening pockets (11) in the base (1) are provided with lateral shoulders (14) with a lateral distance  $H_2$  from the end surface thereof to the axis of the hinge pins (61, 71); wherein a distance from the external edge of the movable portion (31) of the side walls (2, 3) disposed in the opening pocket (11) to the axis of the hinge pin (61, 71) is larger than  $H_2$ .
6. The collapsible container (100) according to claim 1, wherein the movable portion (31) is provided with a recess (32) at the lower portion thereof; the hinge hole is an arc profile (321) disposed at the root of the recess (32); and a narrowed segment (322) is provided between the arc profile (321) and an opening of the recess (32), so as to prevent the hinge pins (61, 71) from easily dropping off after entering into the recess (32).
7. The collapsible container (100) according to claim

2, wherein the interlocking device comprises ledges (33) provided on the two sides of the movable portion (31) and grooves (13) on the base (1) for engaging with the ledges (33), so as to restrict a movement of the side wall (2, 3) in vertical direction relative to the base (1) when the side wall (2, 3) is in erected status.

8. The collapsible container (100) according to claim 1, wherein the movable portion (31a) is provided with an inclined ramp (34), when connected, the vertical distance from the ramp (34) to the axis of the hinge pins (61, 71) of the connector (6, 7) is no greater than the vertical distance  $H_2$  from the axis of the hinge pin (61, 71) to an end surface of the shoulders (14) on the base (1).
9. The collapsible container (100) according to claim 1, wherein the movable portion (31a) is provided with a slot (37) at a bottom end on one side thereof, and the base (1) is provided with a baffle (15), wherein the slot (37) allows the baffle (15) of the base (1) to be received therein when the side walls (2, 3) are erected, so as to restrict the side walls (2, 3) from moving inwardly when suffering external force.

#### Patentansprüche

1. Zusammenklappbarer Behälter (100), der eine Basis und zwei Paare von gegenüberliegenden Seitenwänden (2, 3) umfasst, wobei:

jede der Seitenwände (2, 3) mit einem oder mit mehreren beweglichen Abschnitten (31, 31a) bereitgestellt ist, die sich von der Unterseite der Seitenwände (2, 3) erstrecken, und die Basis (1) mit einer oder mit mehreren Öffnungstaschen (11, 11a) bereitgestellt ist, wobei die Seitenwände (2, 3) in den entsprechenden Öffnungstaschen (11, 11a) auf der Basis (1) durch die beweglichen Abschnitte (31, 31a) positioniert sind. eine Scharniervorrichtung zwischen den beweglichen Abschnitten (31) und den Öffnungstaschen (11) bereitgestellt ist, **dadurch gekennzeichnet, dass** die Scharniervorrichtung umfasst:

Scharnierlöcher (321), die in den beweglichen Abschnitten (31) der Seitenwände (2, 3) bereitgestellt sind; eine Führungsvorrichtung (12, 16), die in den Öffnungstaschen (11) der Basis (1) bereitgestellt ist; und einen Verbinder (6, 7), der mit Scharnierstiften (61, 71) und einer Gleitvorrichtung (62, 72) zum Eingreifen mit der Führungsvorrichtung (12, 16) bereitgestellt ist; wobei der Verbinder (6, 7) in vertikaler Richtung entlang der Führungsvorrichtung (12, 16) in

den Öffnungstaschen (11) durch die Gleitvorrichtung (62, 72) auf- und abbeweglich ist, und die Scharnierstifte (61, 71) in den Scharnierlöchern (321) angeordnet sind und es den Seitenwänden (2, 3) ermöglichen um die Scharnierstifte (61, 71) rotiert zu werden.

2. Zusammenklappbarer Behälter (100) nach Anspruch 1, wobei eine Verriegelungsvorrichtung (33, 13) zwischen mindestens einer Seitenwand (2, 3) und der Basis angeordnet ist, so dass die Verriegelungsvorrichtung (33, 13) die Seitenwand (2, 3) daran hindert, sich in vertikale Richtung relativ zur Basis (1) zu bewegen, wenn die Seitenwand (2, 3) relativ zur Basis (1) in einem aufgerichteten Zustand ist, und die Verriegelungsvorrichtung (33, 13) zwischen der Seitenwand (2, 3) und der Basis (1) durch die Rotation der Seitenwand (2, 3) um die Scharnierstifte (61, 71) lösbar ist.
3. Zusammenklappbarer Behälter (100) nach Anspruch 1, wobei die Gleitvorrichtung auf dem Verbinder (6) ein Durchgangsloch in dessen Mitte ist; die Scharnierstifte (61) senkrecht zur Achse des Durchgangslochs auf einer oder auf zwei Seiten des Verbinders (6) angeordnet sind; und die Führungsvorrichtung in den Öffnungstaschen (11) der Basis ein vertikaler Zylinder (12) ist, der in der Lage ist, durch das Durchgangsloch (62) hindurch zu gehen, so dass der Verbinder (6) entlang der Achse des Zylinders (12) beweglich ist.
4. Zusammenklappbarer Behälter (100) nach Anspruch 1, wobei die Gleitvorrichtung des Verbinders (7) eine gerade Wand (72) ist, die an einem Ende des Verbinders (7) angeordnet ist; die Scharnierstifte (71) an dem anderen Ende des Verbinders (7) und senkrecht zur geraden Wand (72) angeordnet sind; und die Führungsvorrichtung in der Öffnungstasche (11) ein gerader Schlitz (16) senkrecht zu einer Ebene der Basis (1) ist, wobei die gerade Wand (72) entlang des geraden Schlitzes (16) verschiebbar ist, so dass der Verbinder (7) entlang des geraden Schlitzes (16) beweglich ist.
5. Zusammenklappbarer Behälter (100) nach Anspruch 1, wobei die Öffnungstaschen (11) in der Basis (1) mit seitlichen Schultern (14) bereitgestellt sind, mit einem Seitenabstand  $H_2$  von der Endoberfläche davon zu der Achse der Scharnierstifte (61, 71); wobei ein Abstand von der äußeren Kante des beweglichen Abschnittes (31) der Seitenwände (2, 3) angeordnet in der Öffnungstasche (11) zur Achse des Scharnierstiftes (61, 71) größer als  $H_2$  ist.
6. Zusammenklappbarer Behälter (100) nach Anspruch 1, wobei der bewegliche Abschnitt (31) mit

einer Aussparung (32) am unteren Abschnitt davon bereitgestellt ist; das Scharnierloch ein Bogenprofil (321) ist, das an dem Ursprung der Aussparung (32) angeordnet ist; und wobei ein verengtes Segment (322) zwischen dem Bogenprofil (321) und einer Öffnung der Aussparung (32) bereitgestellt ist, um die Scharnierstifte (61, 71) daran zu hindern, nach dem Eintreten in die Aussparung (32) leicht herauszufallen.

7. Zusammenklappbarer Behälter (100) nach Anspruch 2, wobei die Verriegelungsvorrichtung Leisten (33) umfasst, die auf beiden Seiten des beweglichen Abschnittes (31) bereitgestellt sind, und Nuten (13) auf der Basis (1) zum Eingreifen in die Leisten (33), um eine Bewegung der Seitenwand (2, 3) in vertikaler Richtung relativ zur Basis (1) zu beschränken, wenn die Seitenwand (2, 3) in dem aufgerichteten Zustand ist.

8. Zusammenklappbarer Behälter (100) nach Anspruch 1, wobei der bewegliche Abschnitt (31a) mit einer geneigten Rampe (34) bereitgestellt ist, wenn verbunden, der vertikale Abstand von der Rampe (34) zur Achse der Scharnierstifte (61, 71) des Verbinders (6, 7) nicht größer als der vertikale Abstand  $H_2$  von der Achse der Scharnierstifte (61, 71) zu einer Endoberfläche der Schultern (14) auf der Basis (1) ist.

9. Zusammenklappbarer Behälter (100) nach Anspruch 1, wobei der bewegliche Abschnitt (31a) mit einem Schlitz (37) an einem unteren Ende auf einer Seite davon bereitgestellt ist, und die Basis (1) mit einer Ablenkplatte (15) bereitgestellt ist, wobei es der Schlitz (37) der Ablenkplatte (15) der Basis (1) ermöglicht darin aufgenommen zu werden, wenn die Seitenwände (2, 3) aufrecht sind, um die Seitenwände (2, 3) darin zu beschränken, sich nach innen zu bewegen, wenn eine äußere Kraft auf sie einwirkt.

## Revendications

1. Un conteneur aplatissable (100) comprenant une base (1) et deux paires de parois latérales opposées (2, 3), dans lequel :

chacune des parois latérales (2, 3) est munie d'une ou plusieurs portions mobiles (31, 31a) s'étendant depuis le fond des parois latérales (2, 3), et la base (1) est munie d'un ou plusieurs logements ouvrants (11, 11a), les parois latérales (2, 3) étant positionnées dans les logements ouvrants correspondants (11, 11a) de la base (1) par l'intermédiaire des portions mobiles (31, 31a) ; un dispositif d'articulation est prévu entre les

portions mobiles (31) et les logements ouvrants (11), **caractérisé en ce que**

le dispositif d'articulation comprend : des trous d'articulation (321) ménagés dans les portions mobiles (31) des parois latérales (2, 3) ; un dispositif de guidage (12, 16) prévu dans les logements ouvrants (11) de la base (1) ; et un connecteur (6, 7) muni de tétons d'articulation (61, 71) et d'un dispositif de coulissement (62, 72) destiné à coopérer avec le dispositif de guidage (12, 16) ; dans lequel le connecteur (6, 7) est déplaçable vers le haut et vers le bas dans la direction verticale le long du dispositif de guidage (12, 16) dans les logements ouvrants (11) par l'intermédiaire du dispositif de coulissement (62, 72), et les tétons d'articulation (61, 71) sont disposés dans les trous d'articulation (321) et permettent aux parois latérales (2, 3) de tourner autour des tétons d'articulation (61, 71).

2. Le conteneur aplatissable (100) selon la revendication 1, dans lequel un dispositif de verrouillage (33, 13) est disposé entre au moins une paroi latérale (2, 3) et la base, de sorte que le dispositif de verrouillage (33, 13) empêche la paroi latérale (2, 3) de se déplacer dans la direction verticale par rapport à la base (1) lorsque la paroi latérale (2, 3) est à l'état érigé par rapport à la base (1), et le dispositif de verrouillage (33, 13) entre la paroi latérale (2, 3) et la base (1) est libérable par la rotation de la paroi latérale (2, 3) autour des tétons d'articulation (61, 71).

3. Le conteneur aplatissable (100) selon la revendication 1, dans lequel le dispositif de coulissement sur le connecteur (6) est un trou débouchant dans le centre de celui-ci ; les tétons d'articulation (61) sont disposés perpendiculairement à l'axe du trou débouchant sur un ou deux côtés du connecteur (6) ; et le dispositif de guidage dans les logements ouvrants (11) de la base est un cylindre vertical (12) apte à traverser le trou débouchant (62), de sorte que le connecteur (6) est déplaçable suivant l'axe du cylindre (12).

4. Le conteneur aplatissable (100) selon la revendication 1, dans lequel le dispositif de coulissement du connecteur (7) est une paroi rectiligne (72) disposée à une extrémité du connecteur (7) ; les tétons d'articulation (71) sont situés à l'autre extrémité du connecteur (7) et perpendiculairement à la paroi rectiligne (72) ; et le dispositif de guidage dans le logement ouvrant (11) est une rainure rectiligne (16) perpendiculaire à un plan de la base (1), dans lequel la paroi rectiligne (72) est coulissante le long de la rainure rectiligne (16), de sorte que le connecteur (7) est déplaçable le long de la rainure rectiligne (16).

5. Le conteneur aplatissable (100) selon la revendica-

- tion 1, dans lequel les logements ouvrants (11) dans la base (1) sont pourvus d'épaulements latéraux (14) avec une distance latérale H2 depuis la surface extrême de ceux-ci jusqu'à l'axe des tétons d'articulation (61, 71) ; dans lequel une distance depuis le bord extérieur de la portion mobile (31) des parois latérales (2, 3) disposées dans le logement ouvrant (11) jusqu'à l'axe du téton d'articulation (61, 71) est supérieure à H2.
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6. Le conteneur aplatissable (100) selon la revendication 1, dans lequel la portion mobile (31) est pourvue d'un évidement (32) dans la portion inférieure de celle-ci ; le trou d'articulation est un profil arqué (321) disposé au fond de l'évidement (32); et un segment rétréci (322) est prévu entre le profil arqué (321) et une ouverture de l'évidement (32) de façon à empêcher les tétons d'articulation (61, 71) de tomber facilement après être entrés dans l'évidement (32).
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7. Le conteneur aplatissable (100) selon la revendication 2, dans lequel le dispositif de verrouillage comprend des rebords (33), prévus sur les deux côtés de la portion mobile (31), et des renforcements (13) sur la base (1) pour coopérer avec les rebords (33), de façon à limiter un mouvement de la paroi latérale (2, 3) dans la direction verticale par rapport à la base (1) lorsque la paroi latérale (2, 3) est à l'état érigé.
- 25
8. Le conteneur aplatissable (100) selon la revendication 1, dans lequel la portion mobile (31a) est munie d'une rampe inclinée (34), à l'état connecté la distance verticale depuis la rampe (34) jusqu'à l'axe des tétons d'articulation (61, 71) du connecteur (6, 7) n'étant pas supérieure à la distance verticale H2 depuis l'axe du téton d'articulation (61, 71) jusqu'à une surface extrême des épaulements (14) de la base (1).
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- 35
9. Le conteneur aplatissable (100) selon la revendication 1, dans lequel la portion mobile (31a) est munie d'une rainure (37) à une extrémité de fond sur un côté de celle-ci, et la base (1) est munie d'une butée (15), dans lequel la rainure (37) permet à la butée (15) de la base (1) d'être reçue à l'intérieur de celle-ci lorsque les parois latérales (2, 3) sont érigées de façon à empêcher les parois latérales (2, 3) de se déplacer vers l'intérieur lorsqu'elles sont soumises à une force extérieure.
- 40
- 45
- 50
- 55

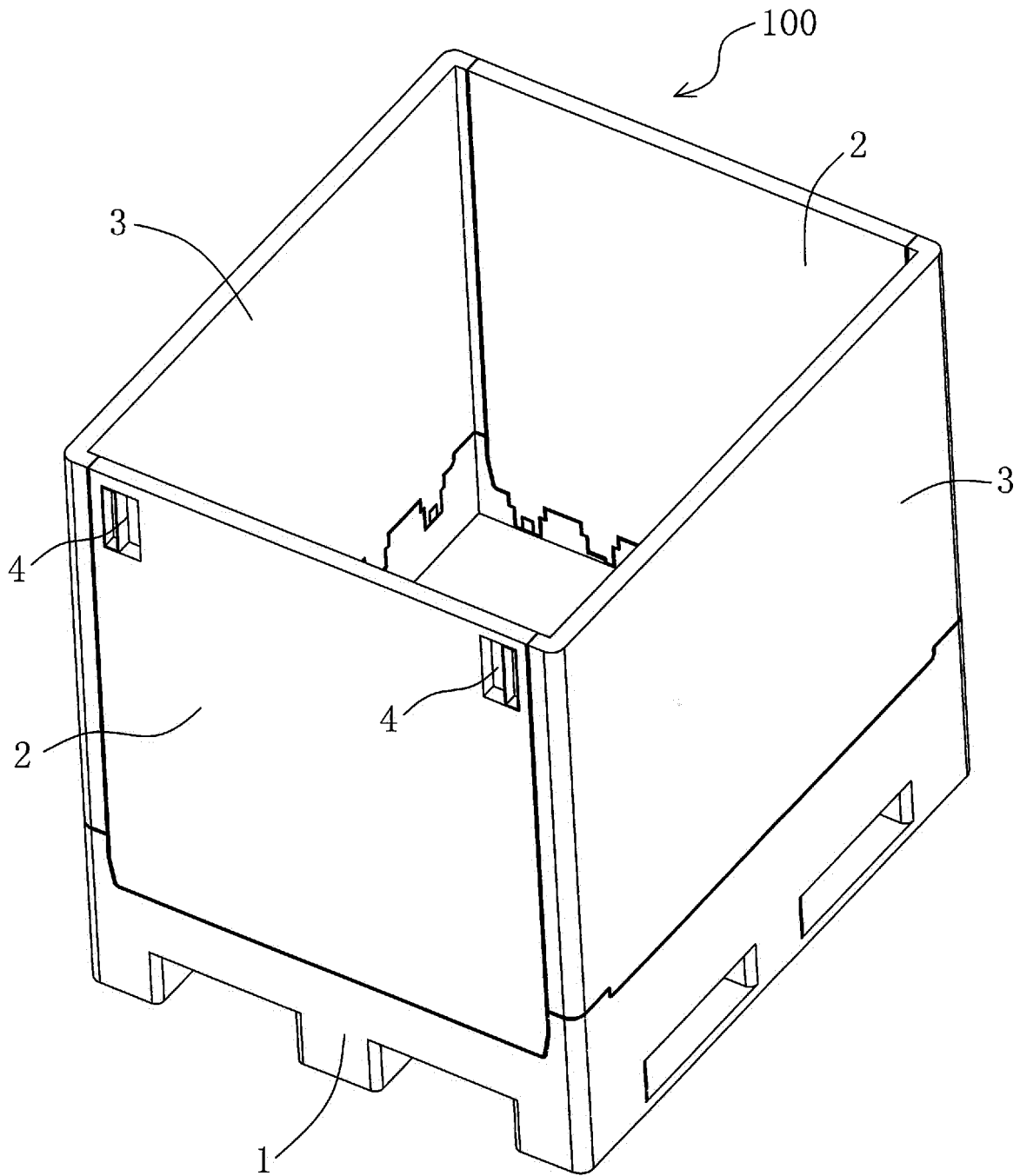


FIG. 1

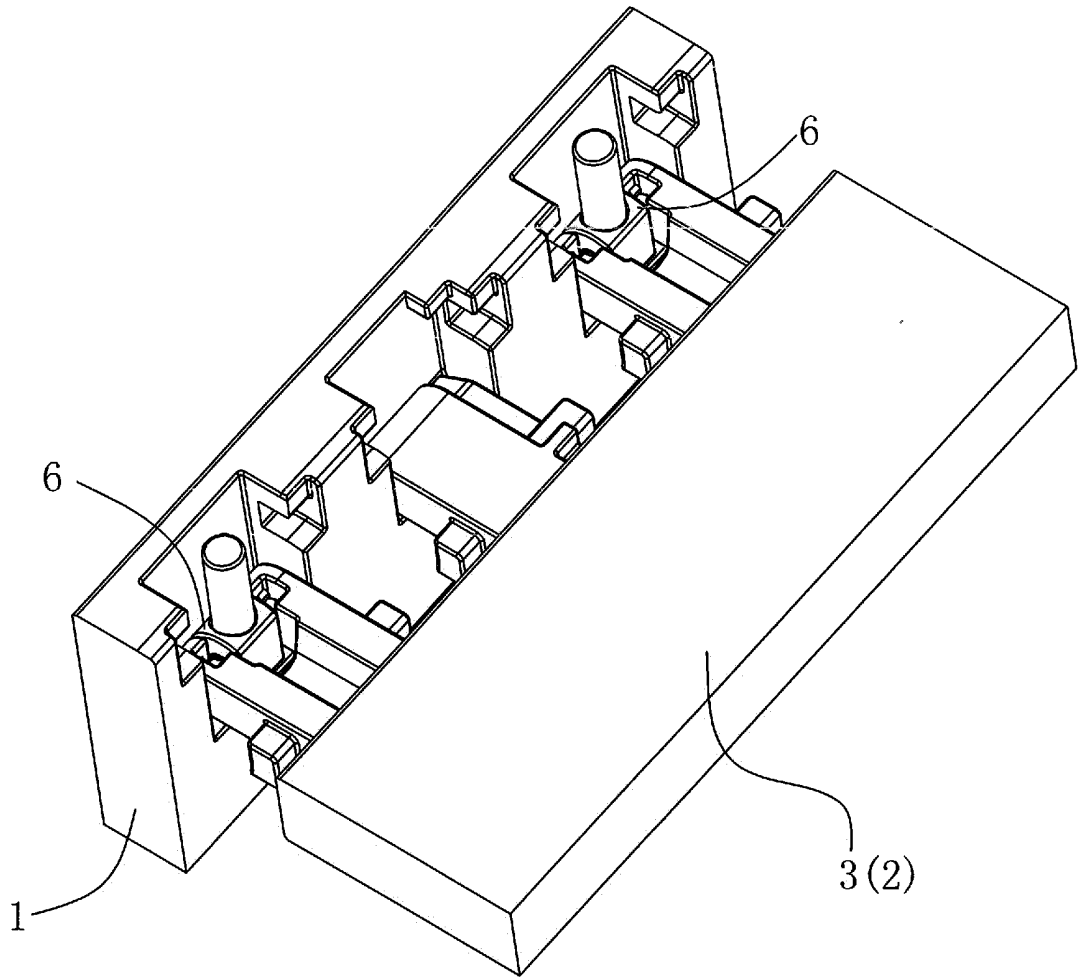


FIG. 2

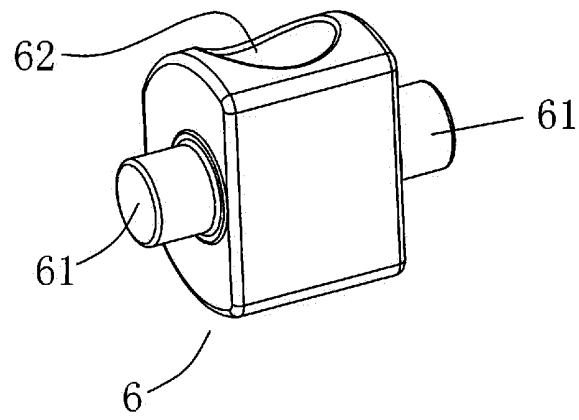


FIG. 3

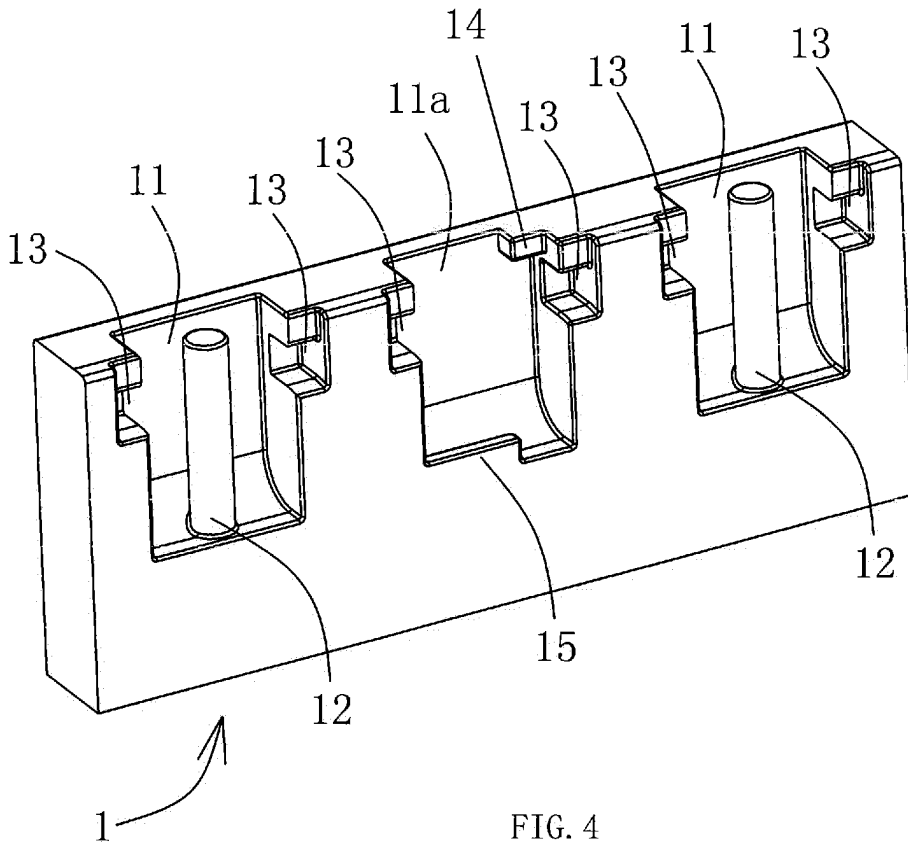


FIG. 4

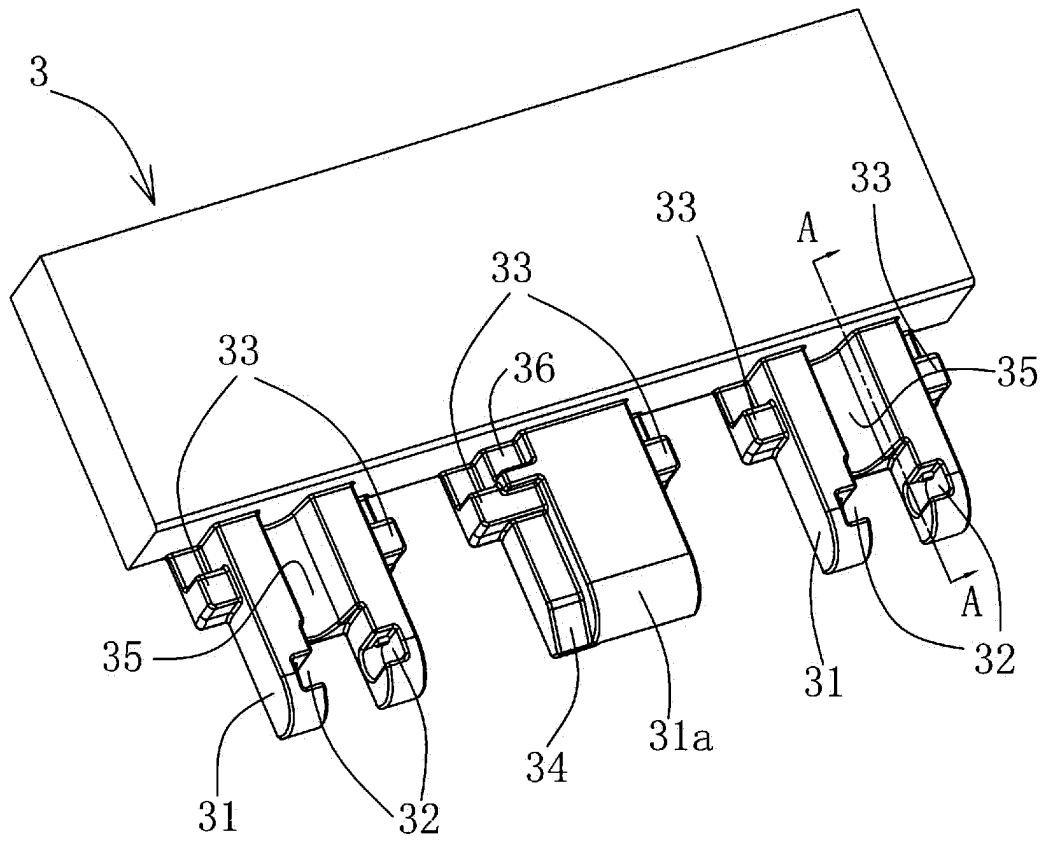


FIG. 5

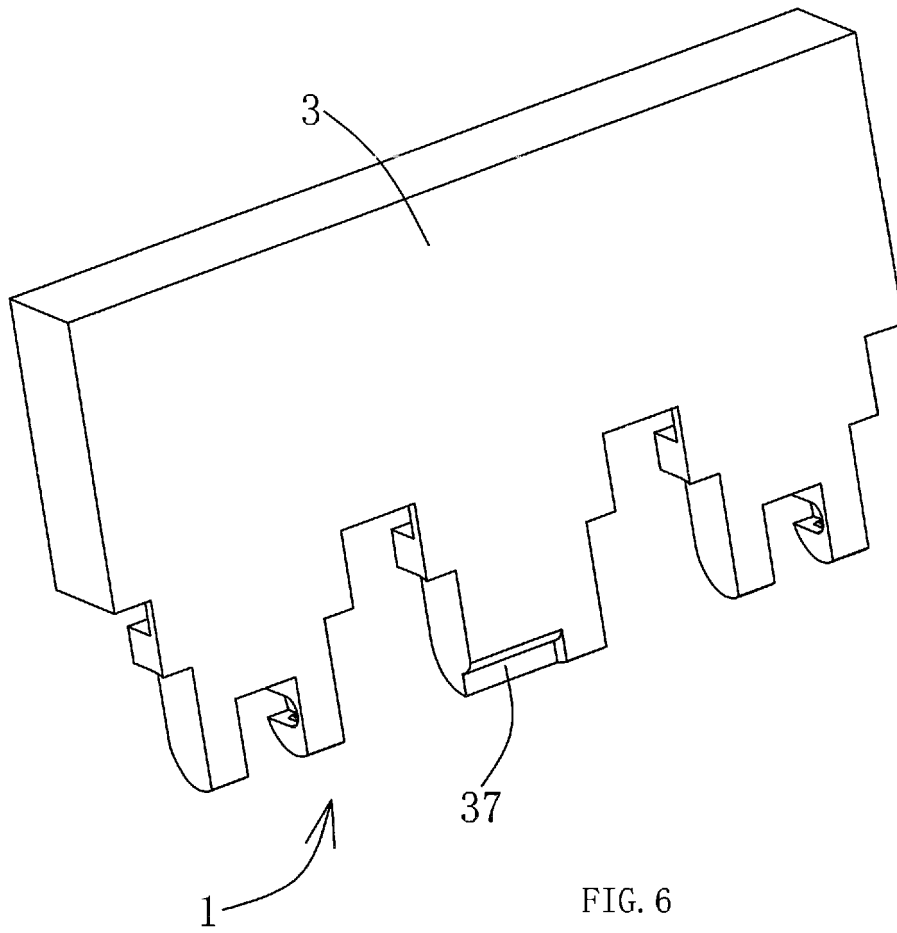


FIG. 6

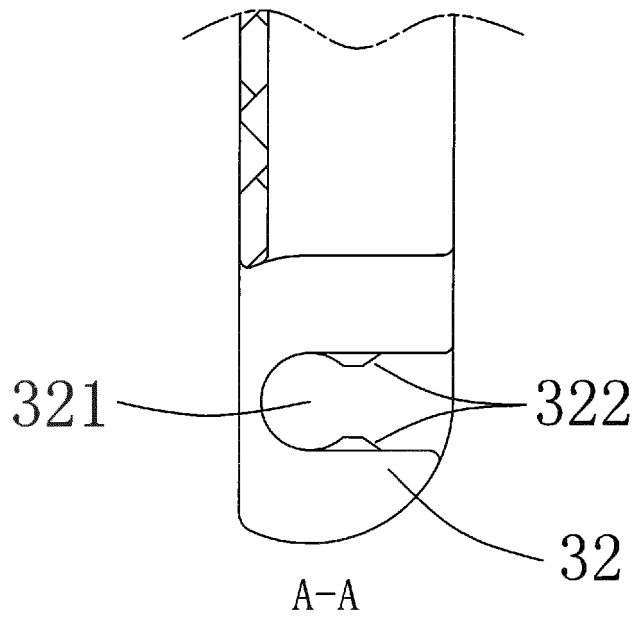


FIG. 7

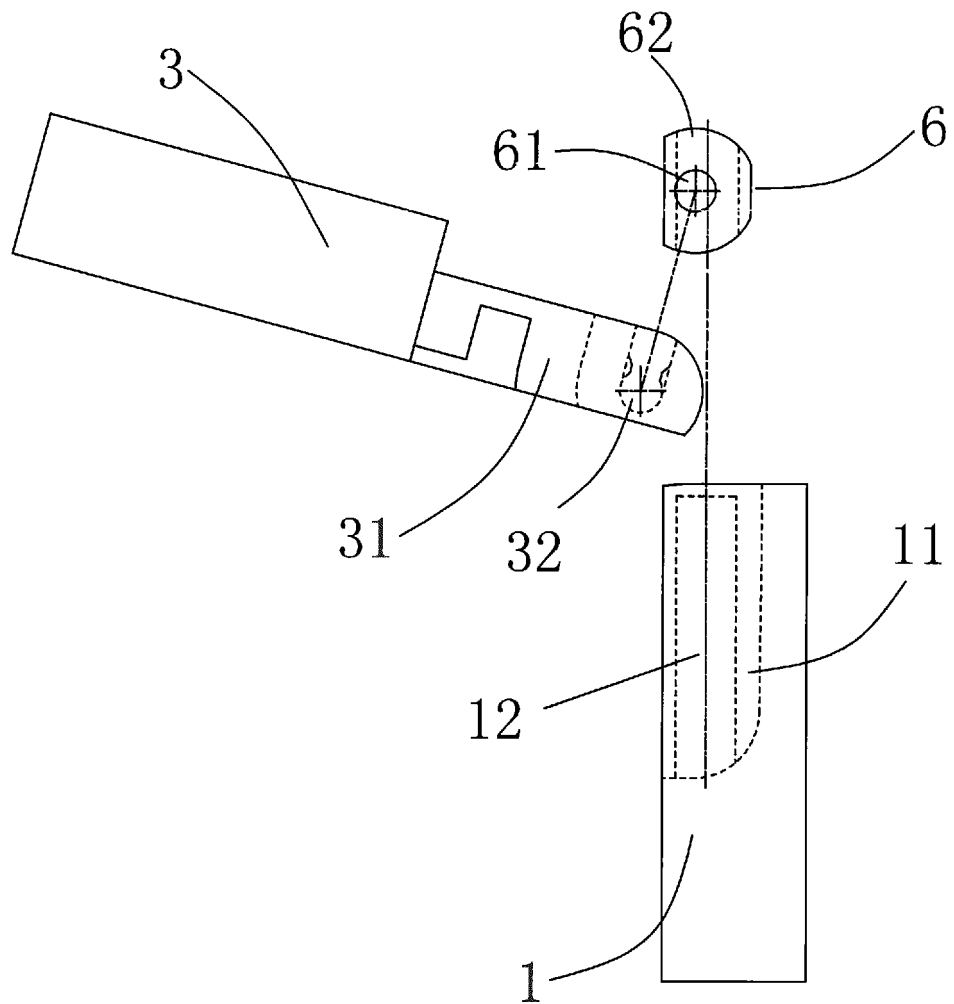


FIG. 8

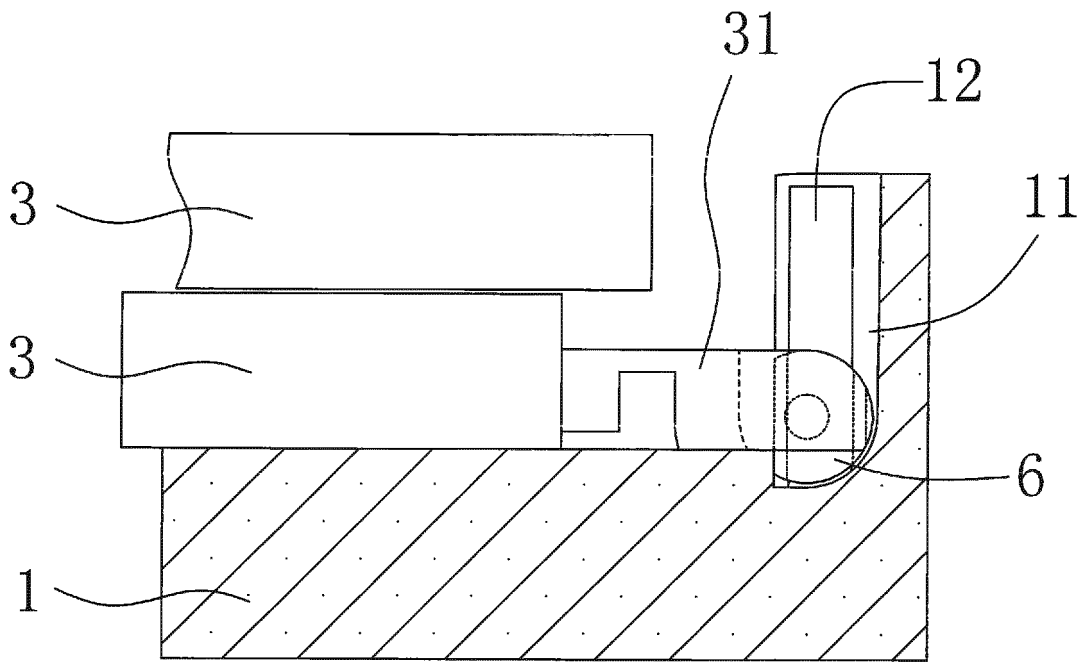


FIG. 9

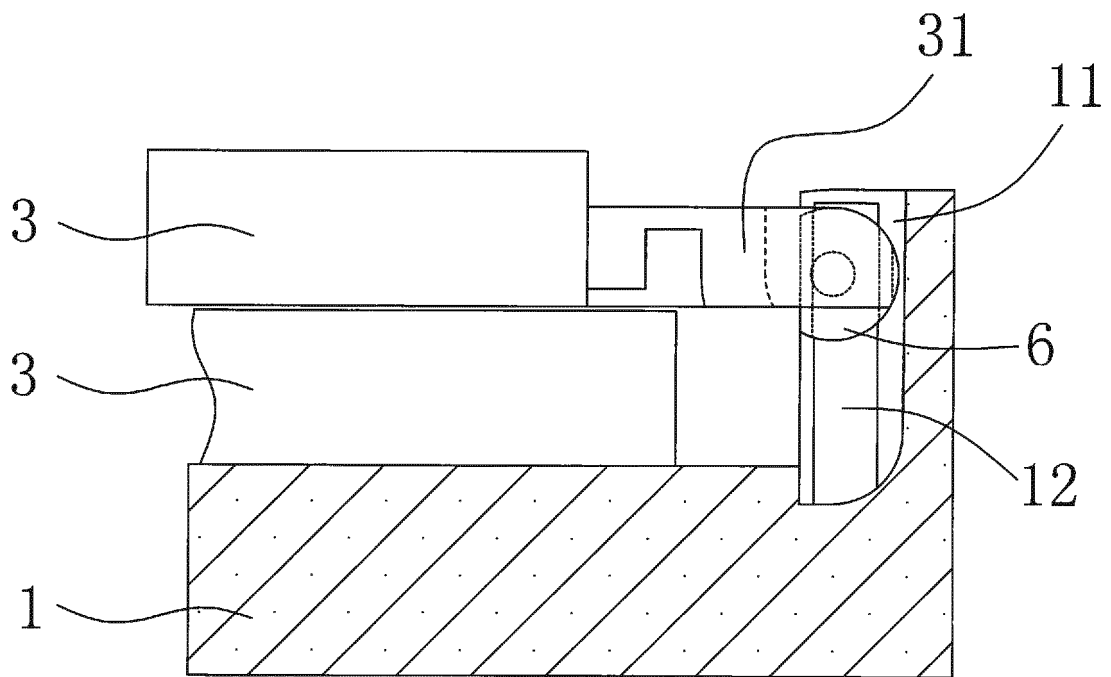


FIG. 10

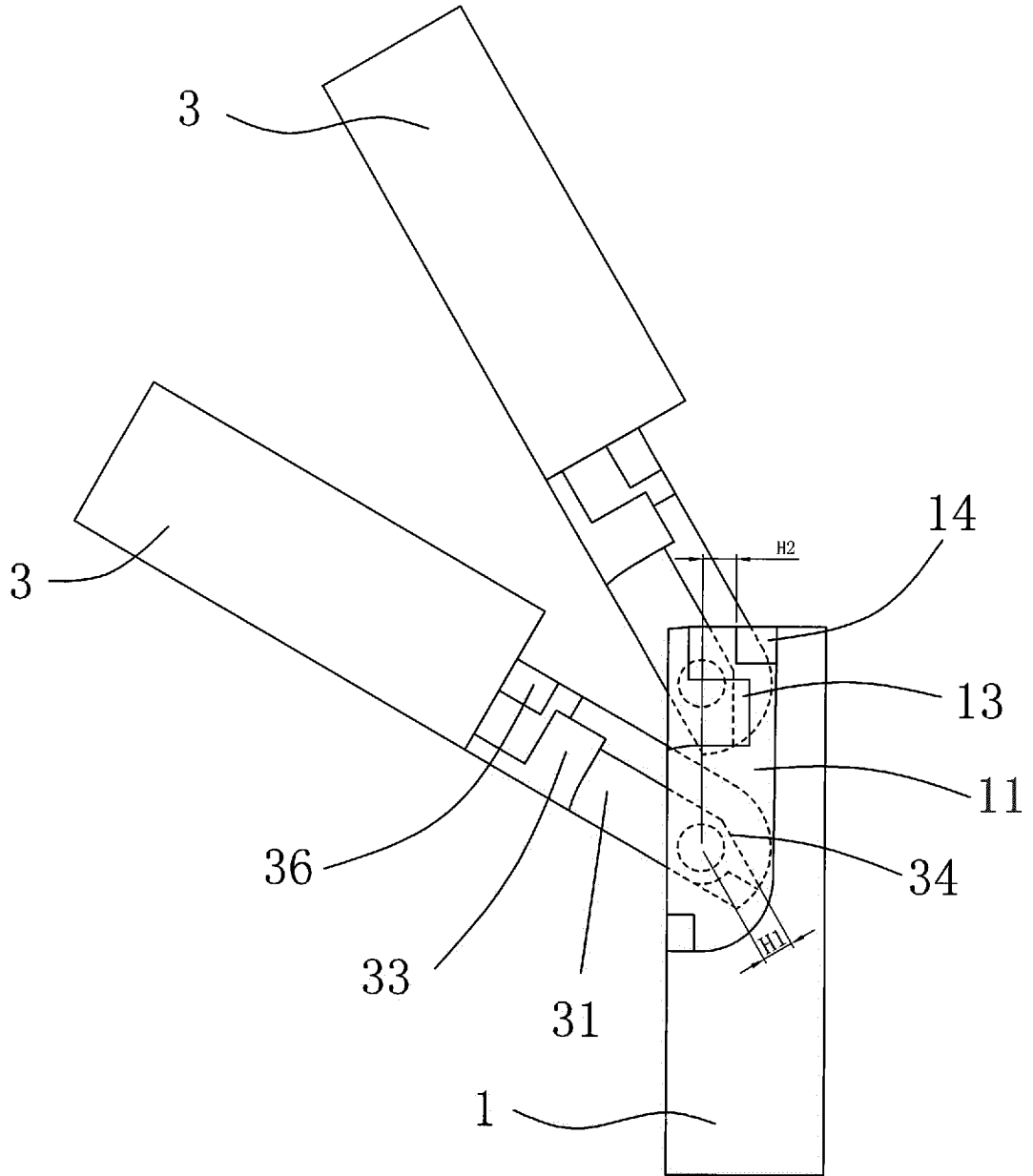


FIG. 11

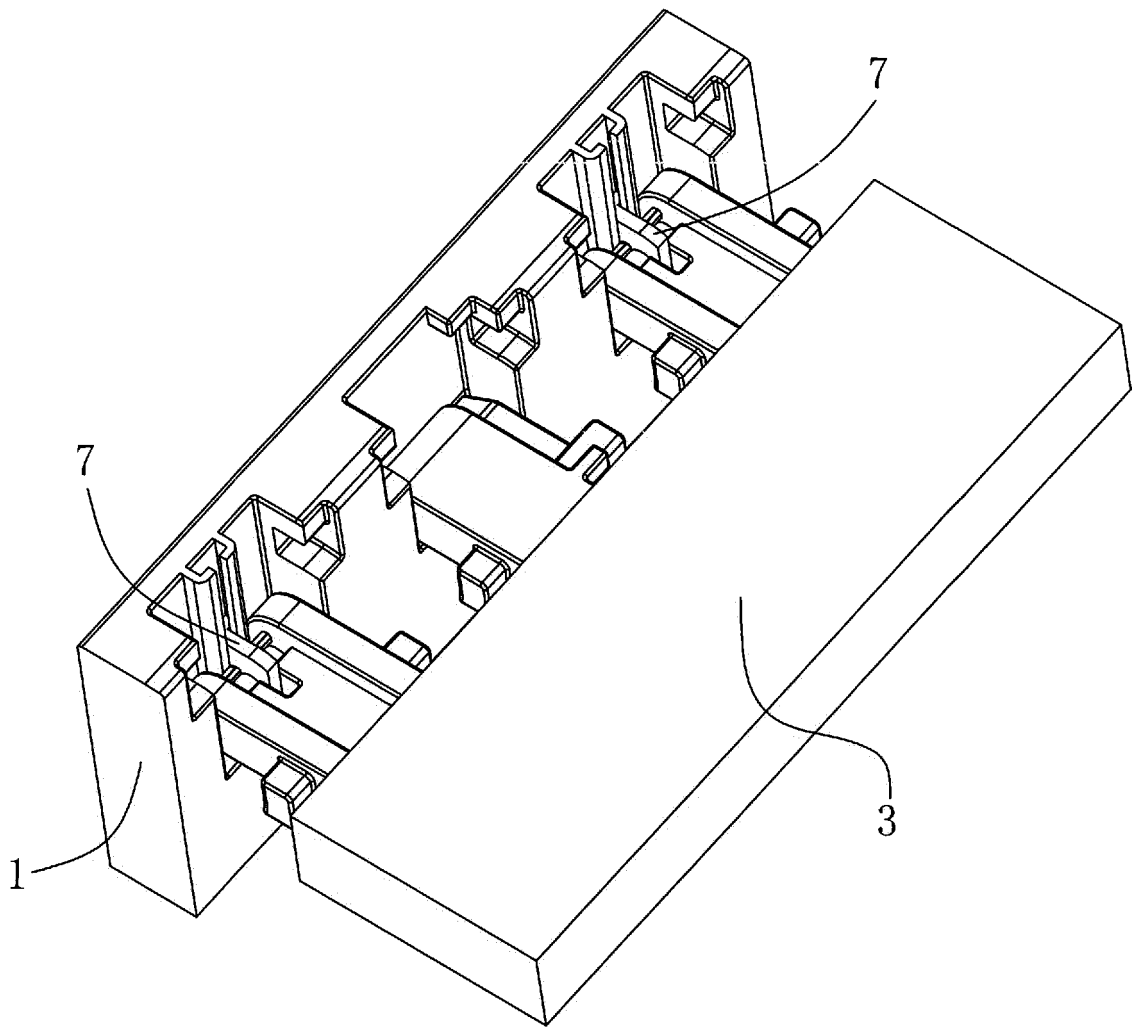


FIG. 12

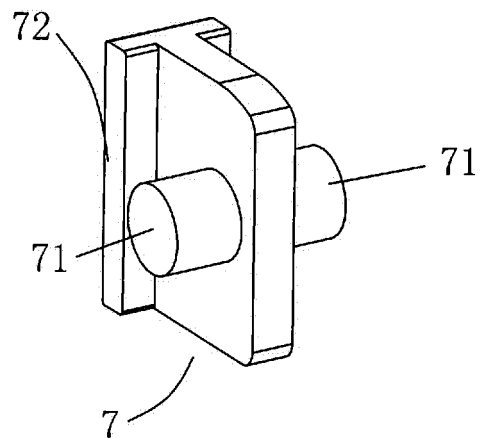


FIG. 13

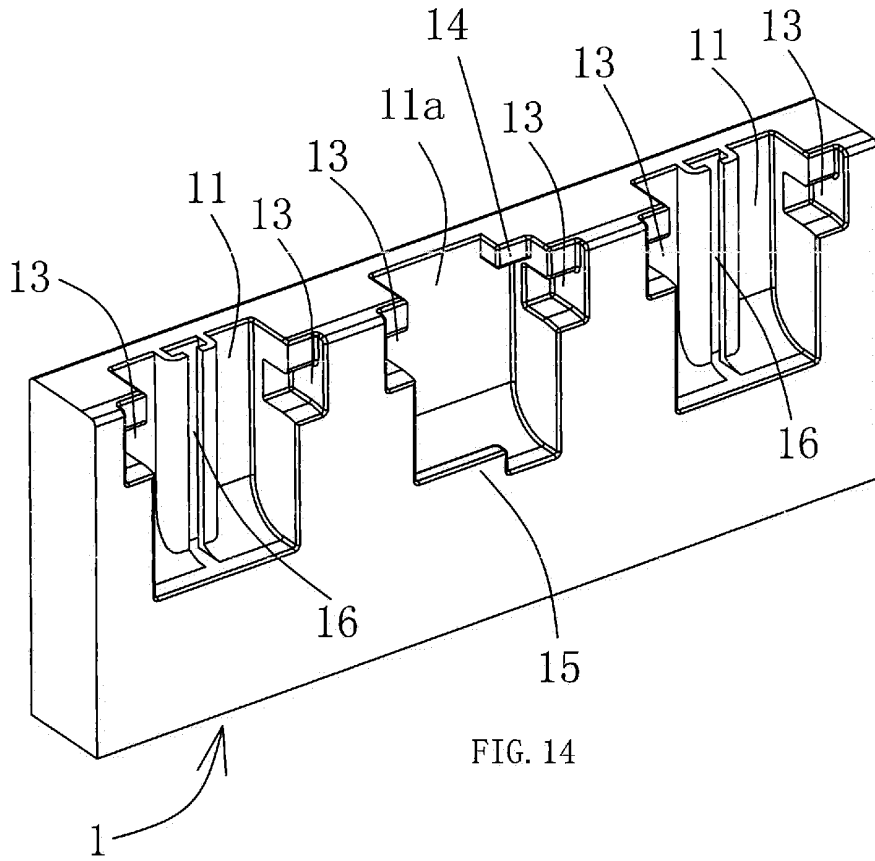


FIG. 14

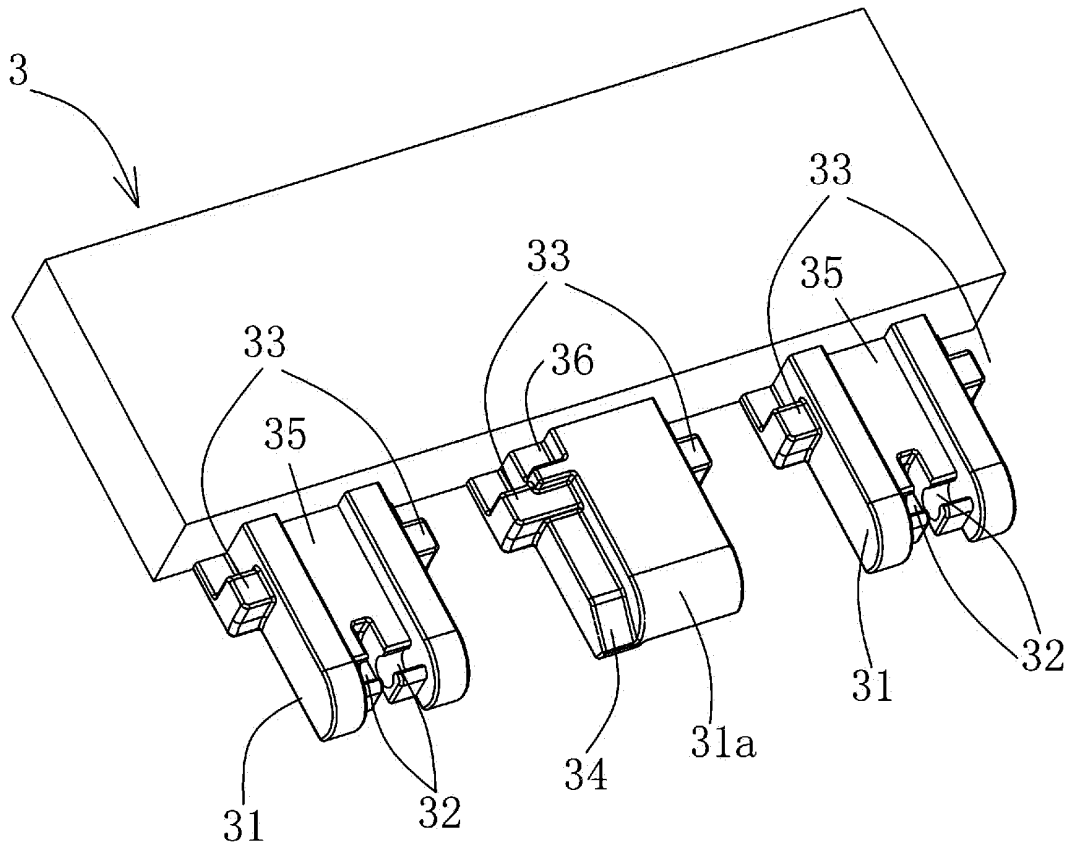


FIG. 15

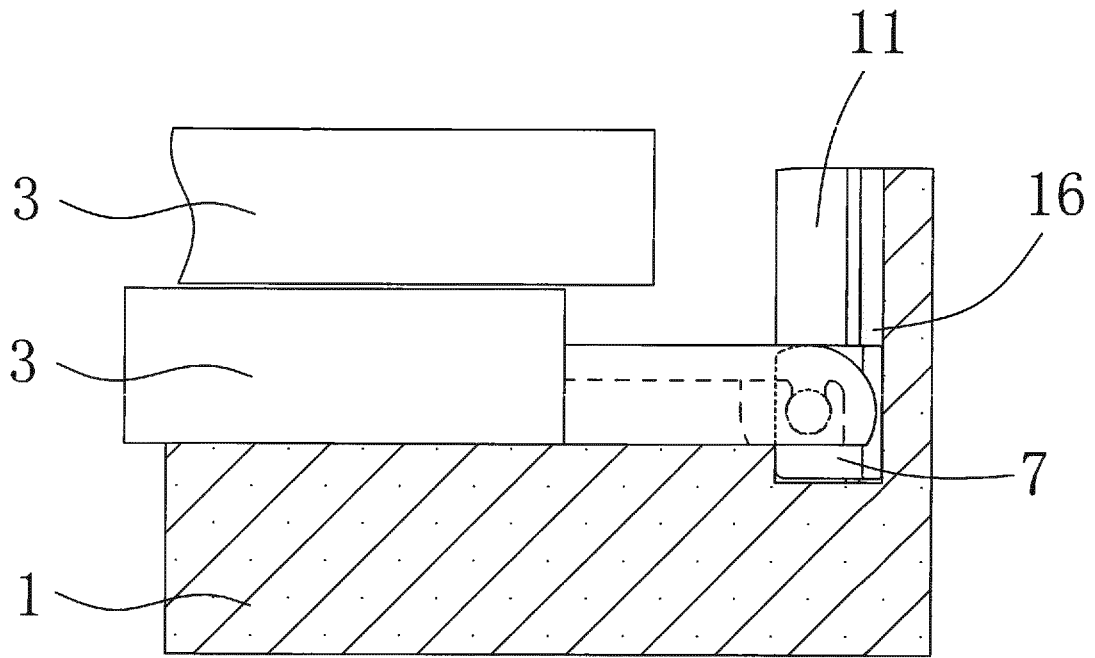


FIG. 16

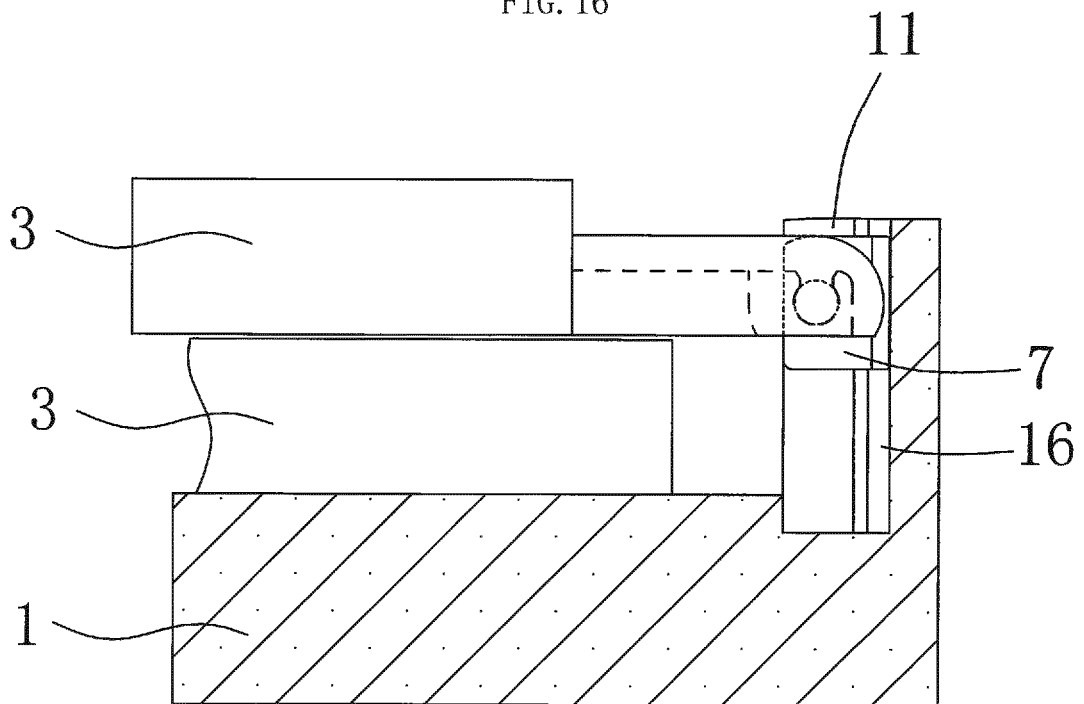


FIG. 17